

WHAT IS CLAIMED IS:

1. A magnet mounting assembly for use in detachably mounting a device to a rounded ferromagnetic surface of a liquid storage tank, said assembly comprising:
  - a ferromagnetic support plate including a central axis, and an interior face;
  - a ferromagnetic plate extension depending from said interior face;
  - a permanent magnet disposed on said interior face; and
  - said plate extension being sized and shaped with a plurality of axial heights relative to said plate, to form a plurality of legs having terminal edges, said edges being configured to engage the rounded ferromagnetic surface at a plurality of non-contiguous locations thereon.
2. The assembly of claim 1, wherein said support plate is substantially flat.
3. The assembly of claim 1, wherein said plate extension extends substantially orthogonally relative to said interior face of said support plate.
4. The assembly of claim 1, comprising four legs.
5. The assembly of claim 1, wherein said edges define a geometry having a transverse dimension  $d$  disposed orthogonally to said axis, said edges are disposed at an oblique angle  $\alpha$  relative to said transverse dimension, and a ratio of said transverse dimension  $d$  (in inches) to said angle  $\alpha$  (in degrees) is within a range of about 1:0.5 to 1:2.
6. The assembly of claim 1, comprising a V-block, wherein said edges of said legs define at least a pair of mutually intersecting planes forming a V-groove.

7. The assembly of claim 6, comprising one or more V-grooves configured to contact said rounded ferromagnetic surface tangentially in four non-contiguous locations on said rounded magnetic surface.
8. The assembly of claim 6, wherein said planes of said one or more V-grooves are disposed at an angle  $\alpha$  of from 1 to 4 degrees relative to a plane orthogonal to said axis.
9. The assembly of claim 8, wherein said angle is from 2 to 3 degrees.
10. The assembly of claim 6, comprising two legs.
11. The assembly of claim 10, comprising four legs.
12. The assembly of claim 10, wherein said plate extension extends continuously about said periphery.
13. The assembly of claim 6, wherein axial heights of said planes are greater than an axial height of said magnet.
14. The assembly of claim 13, wherein said magnet is free of said mutually intersecting planes.
15. The assembly of claim 1, wherein said periphery of said support plate is rounded in a transverse plane orthogonal to said axial direction.
16. The assembly of claim 1, wherein said periphery of said support plate is substantially circular in said transverse plane.
17. The assembly of claim 1, wherein said rounded ferromagnetic surface is an exterior surface of a storage tank.

18. The assembly of claim 1, wherein said rounded ferromagnetic surface is cylindrical.
19. The assembly of claim 1, wherein said rounded magnetic surface is spherical.
20. The assembly of claim 1, wherein said magnet is bonded to said interior face of said support plate with an adhesive.
21. The assembly of claim 1, wherein said magnet is a ceramic disc magnet.
22. The assembly of claim 1, wherein said support plate comprises a mounting aperture.
23. The assembly of claim 1, wherein said support plate comprises an alignment aperture.
24. The assembly of claim 1, wherein said support plate and said plate extension comprise a metal selected from the group consisting of iron and nickel.
25. The assembly of claim 1, wherein said support plate and said plate extension are sized and shaped to direct the flux from said magnet to said terminal edges.
26. The assembly of claim 1, wherein said support plate and said plate extension comprise a non-sparking surface layer.
27. The assembly of claim 26, wherein said non-sparking surface layer is selected from the group consisting of brass and stainless steel.
28. A method of detachably mounting a device to a rounded magnetic surface, said method comprising:  
providing a magnet mounting assembly of the type set forth in claim 1;

providing a device;

disposing the device on an exterior face of the support plate to form a magnetic mounting device; and

engaging said magnetic mounting assembly with a rounded magnetic surface, wherein the terminal edges of the legs contact the rounded magnetic surface in a plurality of non-contiguous locations thereon.

29. The method of claim 28, wherein the flux from said magnet is directed to the terminal edges of said four legs.

30. The method of claim 28, wherein said plate extension comprises a V-block including one or more V-grooves, wherein the one or more V-grooves engage the rounded magnetic surface tangentially at a plurality of non-contiguous locations thereon.

31. The method of claim 28, wherein said device is a measurement device.

32. The method of claim 28, wherein said support plate includes an aperture, and said disposing comprises disposing the device to the exterior face of the support plate with a fastener extending through the aperture.

33. The method of claim 32, wherein said support plate includes an alignment aperture, and said disposing comprises aligning a portion of the device with the alignment aperture.

34. A measurement device/storage tank assembly comprising:

- (i) a storage tank having an exterior rounded ferromagnetic surface;
- (ii) a magnetic mounting measurement device disposed on said storage tank, said magnetic mounting measurement device including a measurement device and a magnet mounting assembly fastened thereto, said magnet mounting assembly including:

- (a) a ferromagnetic support plate having a periphery, an exterior face, an interior face, and a plate extension disposed on said periphery, said plate extension being on the same side of said support plate as said interior face and having a plurality of heights, wherein said plate extension comprises four legs having heights greater than the heights of the remainder of said plate extension; and
- (b) a permanent magnet disposed on said interior face of said support plate;

wherein terminal edges of said four legs are engaged with said rounded magnetic surface at four non-contiguous locations thereon.

35. The assembly of claim 34, said plate extension comprising a V-block, wherein edges of said legs define at least a pair of mutually intersecting planes forming at least one V-groove, said V-groove being disposed in tangential engagement with said rounded magnetic surface.

36. A magnet mounting assembly for use in detachably mounting a device to a rounded ferromagnetic surface of a liquid storage tank, said assembly comprising:

a ferromagnetic support plate having a central axis, a perimeter, an exterior face, an interior face, and a ferromagnetic plate extension depending from said perimeter, said plate extension being on the same side of said support plate as said interior face and having a plurality of heights;

a permanent magnet disposed on said interior face; and

said plate extension including four legs having axial heights greater than the axial heights of the remainder of said plate extension;

wherein a distal edge of each of said four legs is sized and shaped to engage the rounded ferromagnetic surface in a plurality of non-contiguous locations thereon.